

Bridges and Structures

September 4, 2001

All Employees

521.1

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Bridges and Structures

MM No. 24 (Beam Design and Bearing Design, Distribution of Dead Load 2)

There have been questions on how to distribute the barrier dead load when designing prestressed beams and steel girders. In the past the office policy has been to distribute the load uniformly to all beams for prestressed beam design, but to distribute the barrier load only to the exterior girder for steel girder design.

In addition, there has been some confusion on the office policy for distributing the overlay (FWS) loads for beam design. Some designers have used the tributary area while others have distributed the load equally to all beams.

The Rating Section policy has been to distribute both the barrier and overlay load equally to all beams or girders for standard roadway widths (widths up to 44 ft.). For roadway widths greater than 44 feet, they have distributed $\frac{1}{2}$ of the barrier load to the exterior beam and the other $\frac{1}{2}$ equally to the next two adjacent beams ($\frac{1}{4}$ per beam). The overlay is still distributed equally to all the beams.

To be more consistent with the rating policy, and to provide a more standard design method for the prestressed beam and steel girder design, the following policy has been adopted:

1. For standard bridge cross sections (roadways up to 44 ft wide), distribute dead load 2 (the barrier and overlay) equally to all beams or girders.
2. For nonstandard bridge cross sections wider than 44 ft follow the same policy as the Rating section and distribute $\frac{1}{2}$ of the barrier load to the exterior beam and the other $\frac{1}{2}$ equally to the next two adjacent beams ($\frac{1}{4}$ per beam). Distribute the overlay equally to all beams in the section.

If you have any questions please check with your section leader.

GAN/DGB/ln